

# Work Order ID 106350

**\*106350\***

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Item ID: 646.9711 Accept **\*N900040100\*** Setup Start **\*NS1\***  
 Revision ID: Stop **\*NS2\***  
 Item Name: Blade  
 Start Date: 8/29/13 Start Qty: 16.00 **\*16\*** Cust Item ID:  
 Required Date: 8/29/13 Req'd Qty: 16.00 **\*16\*** Customer:  
 Reference:

Approvals: Process Plan: MCS Date: 12-08-30 Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start **\*NR1\***  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
646.9700	B								

100  
**\*100\*** BAND SAW 0.00  
 Bandsaw Memo 0.00  
 Jeaspa Bandsaw Cut Blank at 4.625"

DR/DA  
13/09/22

16 0

110  
**\*110\*** HAAS CNC VERTICAL MACHINING #1 0.00  
 HAAS 1 Memo 0.00  
 HAAS CNC vertical machine #1 1-Machine per folio FB135  
 DWG REV: B  
 FOLIO REV: AA

DK  
13/09/23

NH  
12/09/24

2- deburr and break all sharp edges except otherwise noted

PTO →

NCR: Yes No

## WORK ORDER NON-CONFORMANCE / UPDATE

DQA JohnDate: 14/01/02QA Closed: JohnDate: 13/12/19

Work Order: <u>106 350</u>	<b>DISPOSITION</b> Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input checked="" type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>			
Part No. <u>646 9711</u>		Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>
NCR No. <u>13-3359</u>		Machining <input checked="" type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>
		Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>
		Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data	<u>13/09/25</u>		<u>13</u>	<u>BLADE UNDER SIZE ON THE WIDTH.</u>	<u>DAS 16 9-89</u>	<u>Accurate per Email Attached</u>	<u>13/09/25</u>	<u>DAS 40 9-89</u>	<u>DAS 16 9-89</u>
Equip/Tooling									
Operator									
Material		<u>#</u>							
Setup		<u>100</u>		<u>PL Program issue</u>	<u>13/12/11</u>	<u>Part all re programmed</u>	<u>John 13/12/11</u>	<u>13/10/02</u>	<u>13/12/11</u>
Other				<u>marked for must add width</u>	<u>Q2042</u>				<u>Q2042</u>
Process									
Supplier									
Training									
Unapproved									

## FAULT CATEGORY

<b>Landing Gear</b> <input type="checkbox"/> Bending <input type="checkbox"/> Centre Not Concentric to O/S <input type="checkbox"/> Cracks <input type="checkbox"/> Crushed/Crimped <input type="checkbox"/> Cuffs <input type="checkbox"/> Heat Treat <input type="checkbox"/> Inspection Strip in Tube <input type="checkbox"/> Ripples in Bend <input type="checkbox"/> Torque Waves in Extrusion <input type="checkbox"/> Turning Sequence <input type="checkbox"/> Wave/Twist in Tube	<b>General</b> <input type="checkbox"/> Bend <input type="checkbox"/> BOM/Route <input type="checkbox"/> Broken/Damaged <input type="checkbox"/> Burrs <input type="checkbox"/> Contamination <input type="checkbox"/> Countersink <input type="checkbox"/> Cut Too Short <input type="checkbox"/> Drill Holes <input type="checkbox"/> Drawing <input type="checkbox"/> Finish <input type="checkbox"/> Folio	<input type="checkbox"/> Grain <input type="checkbox"/> Hardware <input type="checkbox"/> Inspection Incomplete <input type="checkbox"/> Instructions Incomplete/Unclear <input type="checkbox"/> Maintenance <input type="checkbox"/> Mislabeled <input type="checkbox"/> Misread <input type="checkbox"/> Offset <input type="checkbox"/> Out of Calibration <input type="checkbox"/> Out of Sequence <input type="checkbox"/> Outside Dimensions	<input type="checkbox"/> Ovalized <input type="checkbox"/> Over/Under tolerance <input type="checkbox"/> Part Incorrect <input type="checkbox"/> Part Lost/Missing <input type="checkbox"/> Part Moved <input type="checkbox"/> Positioned Wrong <input type="checkbox"/> Power Loss/Surge <input checked="" type="checkbox"/> Other <u>Programmed incorrectly</u>	<input type="checkbox"/> Pressure/Forced <input type="checkbox"/> Temperature/Cure <input type="checkbox"/> Weld <input type="checkbox"/> Wrong Stock Pulled
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# Work Order ID 106350

\*106350\*

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Item ID: 646.9711 Accept \*N900040100\* Setup Start \*NS1\*  
 Revision ID: Stop \*NS2\*  
 Item Name: Blade  
 Start Date: 8/29/13 Start Qty: 16.00 \*16\* Cust Item ID:  
 Required Date: 8/29/13 Req'd Qty: 16.00 \*16\* Customer:  
 Reference:

Approvals: Process Plan: \_\_\_\_\_ Date: \_\_\_\_\_ Tooling: \_\_\_\_\_ Date: \_\_\_\_\_ Run Start \*NR1\*  
 QC: \_\_\_\_\_ Date: \_\_\_\_\_ SPC (Y/N): \_\_\_\_\_ Date: \_\_\_\_\_ Stop \*NR2\*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
120 *120* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB  Memo	0.00  0.00		DK 13/09/27 MM 13/09/24					
130 *130* QC Quality Control	QC8- Inspect parts - second check  Memo	0.00  0.00		DAS 40 9-89 13/10/01		16	0		
140 *140* Outsource I Outsource process - Heat Treat	Outsource process - Heat Treat  Memo HEAT TREAT AS PER DWG, SEE NOTE #3 ISSUE P/O: 21577	0.00  0.00						13-10-2	

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

**FAULT CATEGORY**

Landing Gear	General	Other
<input type="checkbox"/> Bending	<input type="checkbox"/> Bend	<input type="checkbox"/> Grain
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Hardware
<input type="checkbox"/> Cracks	<input type="checkbox"/> Broken/Damaged	<input type="checkbox"/> Inspection Incomplete
<input type="checkbox"/> Crushed/Crimped	<input type="checkbox"/> Burrs	<input type="checkbox"/> Instructions Incomplete/Unclear
<input type="checkbox"/> Cuffs	<input type="checkbox"/> Contamination	<input type="checkbox"/> Maintenance
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Countersink	<input type="checkbox"/> Misabeled
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Misread
<input type="checkbox"/> Ripples in Bend	<input type="checkbox"/> Drill Holes	<input type="checkbox"/> Offset
<input type="checkbox"/> Torque Waves in Extrusion	<input type="checkbox"/> Drawing	<input type="checkbox"/> Out of Calibration
<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Sequence
<input type="checkbox"/> Wave/Twist in Tube	<input type="checkbox"/> Folio	<input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized
		<input type="checkbox"/> Over/Under tolerance
		<input type="checkbox"/> Part Incorrect
		<input type="checkbox"/> Part Lost/Missing
		<input type="checkbox"/> Part Moved
		<input type="checkbox"/> Positioned Wrong
		<input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced
		<input type="checkbox"/> Temperature/Cure
		<input type="checkbox"/> Weld
		<input type="checkbox"/> Wrong Stock Pulled
		<input type="checkbox"/> Other

**Work Order ID 106350****\*106350\***

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Item ID: 646.9711

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Blade

Start Date: 8/29/13 Start Qty: 16.00

**\*16\***

Cust Item ID:

Required Date: 8/29/13 Req'd Qty: 16.00

**\*16\***

Customer:

Reference:

Approvals:

Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Run Start **\*NR1\***Stop **\*NR2\***

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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150

Receive &amp; Inspect for Damage &amp; Mat'l Certs

0.00

**\*150\***

Packaging

Memo

0.00

Packaging

155

QC5- Inspect part completeness to step on W/O

0.00

**\*155\***

QC

Memo

0.00

Quality Control

160

Spray Painting per QSI005 4.2

0.00

**\*160\***

SprayPaint

Memo

0.00

Spray Painting

PRIME AS PER DWG, SEE NOTE #4

PRIMER BATCH: 127401

*9/3/13 7* (16)

16 *DAS 05 13.10.28*

16 *0 0 AB*  
13-12-7

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%; border: none;"> <tr> <td style="width: 25%;">Skid-tube <input type="checkbox"/></td> <td style="width: 25%;">Crosstube <input type="checkbox"/></td> <td style="width: 25%;">Water Jet <input type="checkbox"/></td> <td style="width: 25%;">Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

**FAULT CATEGORY**

Landing Gear	General	Other
<input type="checkbox"/> Bending	<input type="checkbox"/> Bend	<input type="checkbox"/> Grain
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Hardware
<input type="checkbox"/> Cracks	<input type="checkbox"/> Broken/Damaged	<input type="checkbox"/> Inspection Incomplete
<input type="checkbox"/> Crushed/Crimped	<input type="checkbox"/> Burrs	<input type="checkbox"/> Instructions Incomplete/Unclear
<input type="checkbox"/> Cuffs	<input type="checkbox"/> Contamination	<input type="checkbox"/> Maintenance
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Countersink	<input type="checkbox"/> Misabeled
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Misread
<input type="checkbox"/> Ripples in Bend	<input type="checkbox"/> Drill Holes	<input type="checkbox"/> Offset
<input type="checkbox"/> Torque Waves in Extrusion	<input type="checkbox"/> Drawing	<input type="checkbox"/> Out of Calibration
<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Sequence
<input type="checkbox"/> Wave/Twist in Tube	<input type="checkbox"/> Folio	<input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized
		<input type="checkbox"/> Over/Under tolerance
		<input type="checkbox"/> Part Incorrect
		<input type="checkbox"/> Part Lost/Missing
		<input type="checkbox"/> Part Moved
		<input type="checkbox"/> Positioned Wrong
		<input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced
		<input type="checkbox"/> Temperature/Cure
		<input type="checkbox"/> Weld
		<input type="checkbox"/> Wrong Stock Pulled
		<input type="checkbox"/> Other

**-Work Order ID 106350****\*106350\***

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Item ID: 646.9711

Accept

**\*N900040100\***Setup Start **\*NS1\***

Revision ID:

Stop **\*NS2\***

Item Name: Blade

Start Date: 8/29/13 Start Qty: 16.00

**\*16\***

Cust Item ID:

Required Date: 8/29/13 Req'd Qty: 16.00

**\*16\***

Customer:

Reference:

Approvals:

Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Run Start **\*NR1\***

QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Stop **\*NR2\***Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run Hours

Tool ID

Tool #

Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

170

QC14- Inspect Spray Paint

0.00

**\*170\***

QC

Memo

0.00

Quality Control

16

13-12-10

180

Identify as per dwg & Stock Location: Composites 0.00**\*180\***

Packaging

Memo

0.00

Packaging

16

13-12-10

190

QC21- Final Inspection - Work Order Release 0.00

**\*190\***

QC

Memo

0.00

Quality Control

13/12/10

13-12-10

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

**FAULT CATEGORY**

Landing Gear	General	Other
<input type="checkbox"/> Bending	<input type="checkbox"/> Bend	<input type="checkbox"/> Grain
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Hardware
<input type="checkbox"/> Cracks	<input type="checkbox"/> Broken/Damaged	<input type="checkbox"/> Inspection Incomplete
<input type="checkbox"/> Crushed/Crimped	<input type="checkbox"/> Burrs	<input type="checkbox"/> Instructions Incomplete/Unclear
<input type="checkbox"/> Cuffs	<input type="checkbox"/> Contamination	<input type="checkbox"/> Maintenance
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Countersink	<input type="checkbox"/> Misabeled
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<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Sequence
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		<input type="checkbox"/> Part Incorrect
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		<input type="checkbox"/> Part Moved
		<input type="checkbox"/> Positioned Wrong
		<input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced
		<input type="checkbox"/> Temperature/Cure
		<input type="checkbox"/> Weld
		<input type="checkbox"/> Wrong Stock Pulled
		<input type="checkbox"/> Other



# Picklist Print

August-29-13 1:30:18 PM

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Work Order ID: 106350

Parent Item: 646.9711

Parent Item Name: Blade

Start Date: 8/29/13

Required Date: 8/29/13

Start Qty: 16.00

Required Qty: 16.00

Comments: IPP REV:A NEW ISSUE 12/09/24 JFS VERIFY BY:DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
MSTEEL-A2- B0.500X1.250		Purchased	No			100	f	203.0150	0.386	6.5010528			
AISI A2 TOOL STEEL BAR, 0.500 X 1.250													

Location	Loc Qty	Loc Code
MAT009	203.0150001	
123250	0.0000001	
125350	0.5946	
M126166	78.6704	
M126438	123.75	

DR/H  
13/09/22

6.5.

NCR: Yes / No

**WORK ORDER NON-CONFORMANCE / UPDATE**

DQA: \_\_\_\_\_ Date: \_\_\_\_\_

QA Closed: \_\_\_\_\_ Date: \_\_\_\_\_

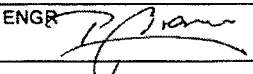
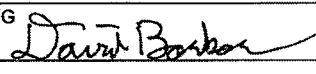
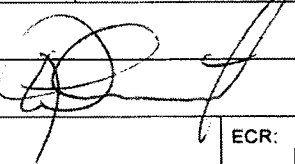
Work Order: _____  Part No. _____  NCR No. _____	<b>DISPOSITION</b>  Rework <input type="checkbox"/> Scrap <input type="checkbox"/> Use-as-is <input type="checkbox"/> Work Order Update <input type="checkbox"/>	<b>AGAINST DEPARTMENT/PROCESS</b>  <table style="width: 100%;"> <tr> <td>Skid-tube <input type="checkbox"/></td> <td>Crosstube <input type="checkbox"/></td> <td>Water Jet <input type="checkbox"/></td> <td>Engineering <input type="checkbox"/></td> </tr> <tr> <td>Machining <input type="checkbox"/></td> <td>Small Fab <input type="checkbox"/></td> <td>Prod. Eng. Coord. <input type="checkbox"/></td> <td>Quality <input type="checkbox"/></td> </tr> <tr> <td>Thermoforming <input type="checkbox"/></td> <td>Finishing <input type="checkbox"/></td> <td>Rec/Store/Packaging <input type="checkbox"/></td> <td>Other <input type="checkbox"/></td> </tr> <tr> <td>Large Fab <input type="checkbox"/></td> <td>Composite <input type="checkbox"/></td> <td>Supplier <input type="checkbox"/></td> <td></td> </tr> </table>	Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>	Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>	Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>	Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>	
Skid-tube <input type="checkbox"/>	Crosstube <input type="checkbox"/>	Water Jet <input type="checkbox"/>	Engineering <input type="checkbox"/>															
Machining <input type="checkbox"/>	Small Fab <input type="checkbox"/>	Prod. Eng. Coord. <input type="checkbox"/>	Quality <input type="checkbox"/>															
Thermoforming <input type="checkbox"/>	Finishing <input type="checkbox"/>	Rec/Store/Packaging <input type="checkbox"/>	Other <input type="checkbox"/>															
Large Fab <input type="checkbox"/>	Composite <input type="checkbox"/>	Supplier <input type="checkbox"/>																

Root Cause	Date	Step	Qty	Description of work order update or Non-conformance	Initial Chief Eng	Action Description	Sign & Date	Verification	QC Inspector
Doc/Data									
Equip/Tooling									
Operator									
Material									
Setup									
Other									
Process									
Supplier									
Training									
Unapproved									

**FAULT CATEGORY**

Landing Gear	General	Other
<input type="checkbox"/> Bending	<input type="checkbox"/> Bend	<input type="checkbox"/> Grain
<input type="checkbox"/> Centre Not Concentric to O/S	<input type="checkbox"/> BOM/Route	<input type="checkbox"/> Hardware
<input type="checkbox"/> Cracks	<input type="checkbox"/> Broken/Damaged	<input type="checkbox"/> Inspection Incomplete
<input type="checkbox"/> Crushed/Crimped	<input type="checkbox"/> Burrs	<input type="checkbox"/> Instructions Incomplete/Unclear
<input type="checkbox"/> Cuffs	<input type="checkbox"/> Contamination	<input type="checkbox"/> Maintenance
<input type="checkbox"/> Heat Treat	<input type="checkbox"/> Countersink	<input type="checkbox"/> Mislabeled
<input type="checkbox"/> Inspection Strip in Tube	<input type="checkbox"/> Cut Too Short	<input type="checkbox"/> Misread
<input type="checkbox"/> Ripples in Bend	<input type="checkbox"/> Drill Holes	<input type="checkbox"/> Offset
<input type="checkbox"/> Torque Waves in Extrusion	<input type="checkbox"/> Drawing	<input type="checkbox"/> Out of Calibration
<input type="checkbox"/> Turning Sequence	<input type="checkbox"/> Finish	<input type="checkbox"/> Out of Sequence
<input type="checkbox"/> Wave/Twist in Tube	<input type="checkbox"/> Folio	<input type="checkbox"/> Outside Dimensions
		<input type="checkbox"/> Ovalized
		<input type="checkbox"/> Over/Under tolerance
		<input type="checkbox"/> Part Incorrect
		<input type="checkbox"/> Part Lost/Missing
		<input type="checkbox"/> Part Moved
		<input type="checkbox"/> Positioned Wrong
		<input type="checkbox"/> Power Loss/Surge
		<input type="checkbox"/> Pressure/Forced
		<input type="checkbox"/> Temperature/Cure
		<input type="checkbox"/> Weld
		<input type="checkbox"/> Wrong Stock Pulled
		<input type="checkbox"/> Other



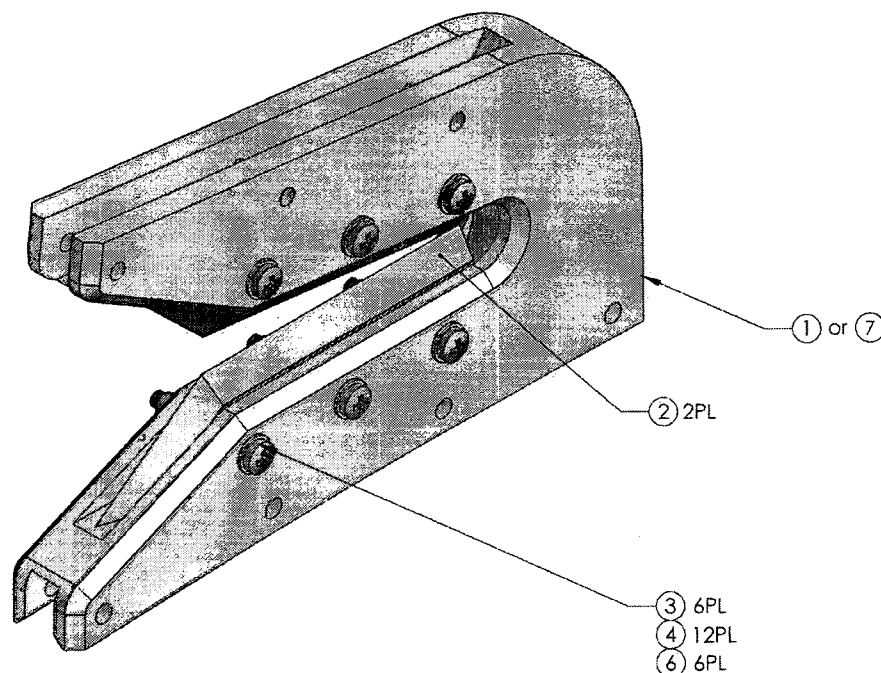
APICAL INDUSTRIES, INC.	ENGINEERING CHANGE NOTICE NO. 04039					SHEET 1 OF 1	
	DWG NO. 646.9700		REV: B	PREPARED BY D. PETERS	DATE: 08/09/13	EFFECT ON DWG <input checked="" type="checkbox"/> INC. <input type="checkbox"/> UNINC.	
	DWG TITLE: CUTTER SUB ASSY						
	APPROVED BY:	ENGR 	MFG 	QC 	EFF: NEXT ORDER		
TRANSACTION CODES (TC): A-ADD C-CREATE R-REVISE D-DELETE		REASON: MARKED INSPECTION DIMENSIONS				ECR: NONE	
106350 MLC 13-08-30							
DOCUMENTS EFFECTED: <input type="checkbox"/> RFMS <input type="checkbox"/> MDL <input type="checkbox"/> INSTALL INSTRUC <input type="checkbox"/> ICA <input type="checkbox"/> BOM				CHANGE CATEGORY <input type="checkbox"/> MAJOR <input checked="" type="checkbox"/> MINOR		DER REVIEW REQUIRED <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO	

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REVISIONS			
REV.	DESCRIPTION	DATE	APPROVED
1	LAST PROTOTYPE REVISION 10/17		JVC
N/C	INITIAL RELEASE	02/29/04	P. BRAVO
A	INCORPORATED FCH 0744, 0296, 0297	06/04/12	P. BRAVO
B	INCORPORATED FCH 0296	07/23/12	P. BRAVO
C	INCORPORATED FCH 0429	08/09/12	P. BRAVO

# NOTES:

- 1 MATERIAL: ALUMINUM 7075-T651 PER AMS-QQ-A-250/12
- 2 FINISH: HARD ANODIZE IAW MIL-A-8625 TYPE III, CLASS 2, COLOR BLACK;  
PRETREAT PRC-DESOTO PR-148 ADHESION PROMOTER;  
PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
- 3 MATERIAL: AISI A2 TOOL STEEL  
CONDITION: ANNEALED  
POST PROCESS: HEAT TREAT TO 58-62 Rc ROCKWELL HARDNESS
- 4 FINISH: PRIME IAW MIL-P-23377J TYPE I CLASS N; 1-2 MIL MAX
- 5 DEBURR AND BREAK ALL SHARP EDGES EXCEPT WHERE OTHERWISE NOTED
- 6 IDENTIFY IAW MPP-120
- 7 APPLY F/N 5 AS REQUIRED TO ALL FAYING SURFACES OF F/N 2 UPON ASSEMBLY
- 8 CUTTING EDGE INTENDED TO BE SHARP. DO NOT BREAK SHARP EDGE
- 9 ALL DIMENSIONS NOT SPECIFIED ARE CONTROLLED BY 646.9710.



646.9701  
or  
646.9702

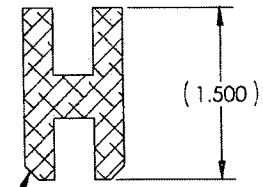
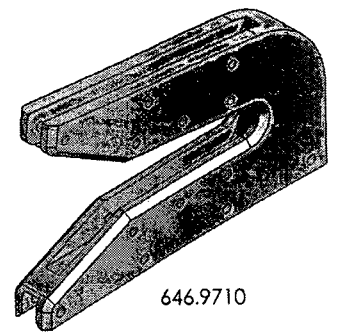
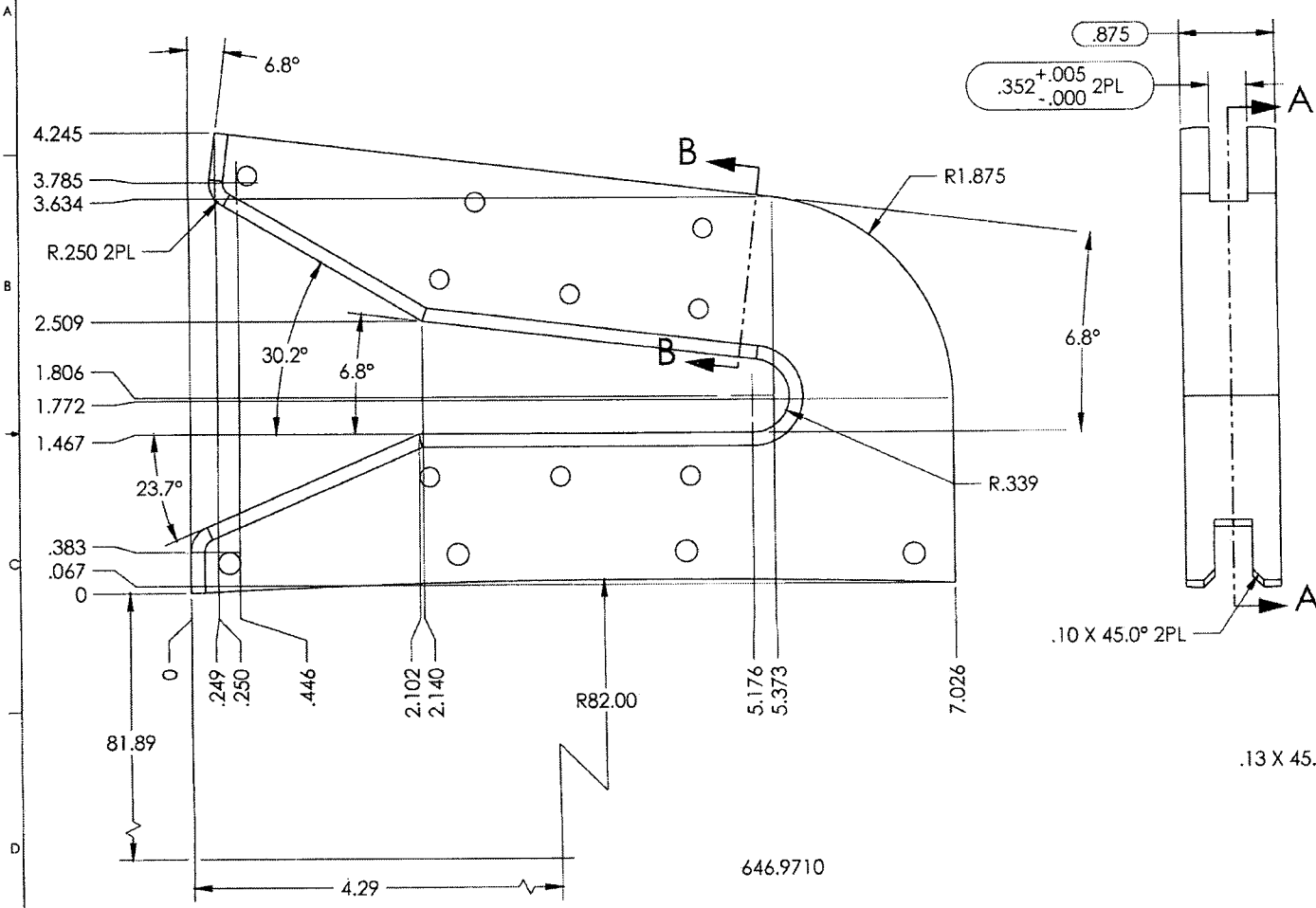
1	7	646.9712	BODY (U CHANNEL)	△	△△
6	6	601.1541	LOCKNUT	MS21042-08	
A/R	A/R	5	601.2764	RTV, LOCTITE 598	
12	12	4	601.2764	WASHER	MS21042-08
6	6	3	601.2765	SCREW	MS21042-08
2	2	2	646.9711	BLADE	△
	1	1	646.9710	BODY	△
			646.9702	CUTTER SUB ASSY (U CHANNEL)	
			646.9701	CUTTER SUB ASSY	
QTY	FIN #	PART #	DESCRIPTION	MATL	SPEC.
PARTS LIST					
NEXT ASSY [S]					
646.9600					
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .01 3 PLACE DECIMALS ± .005 ANGLES ± .5°					
SITE	CLACK COIN	FWT	NO	646.9700	REV C
B	07M26				
SCALE: NONE				SHEET 1 OF 6	

APICAL INDUSTRIES  
2608 TEMPLE HEIGHTS DR.  
OCEANSIDE, CA 92056-3512 (760) 724-5300

CUTTER SUB ASSY

100350

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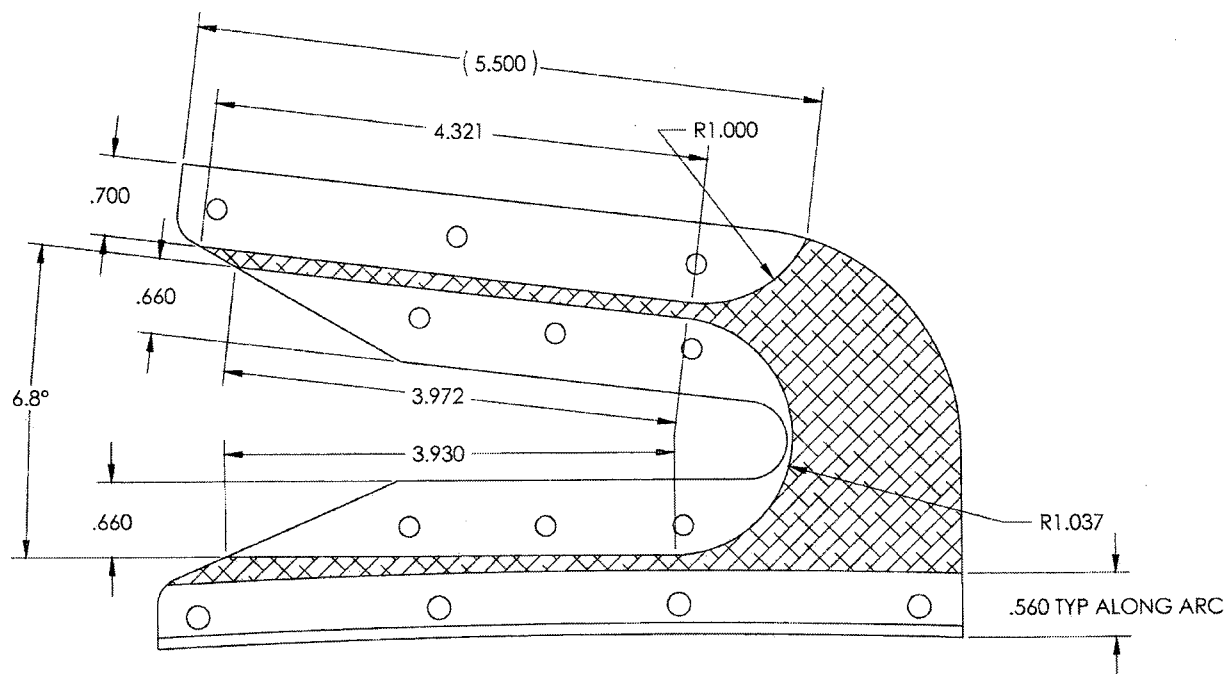
.13 X 45.0° TYP.

SECTION B-B

ORIGINAL DATE 05/22/08		APICAL INDUSTRIES	
DRAWN BY M. BISSANO	CHECKED BY P. BEAVO	2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300	
DRAWING APPROVAL P. BEAVO		CUTTER SUB ASSY	
CONTRACT NO.		SHEET B	REV C
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: FRACTIONS DECIMALS .250 DECIMALS .005 ANGLES .5°		CHG CODE 074126	DWG. NO. 646.9700
		SCALE: NONE	SHEET 2 OF 6

100310

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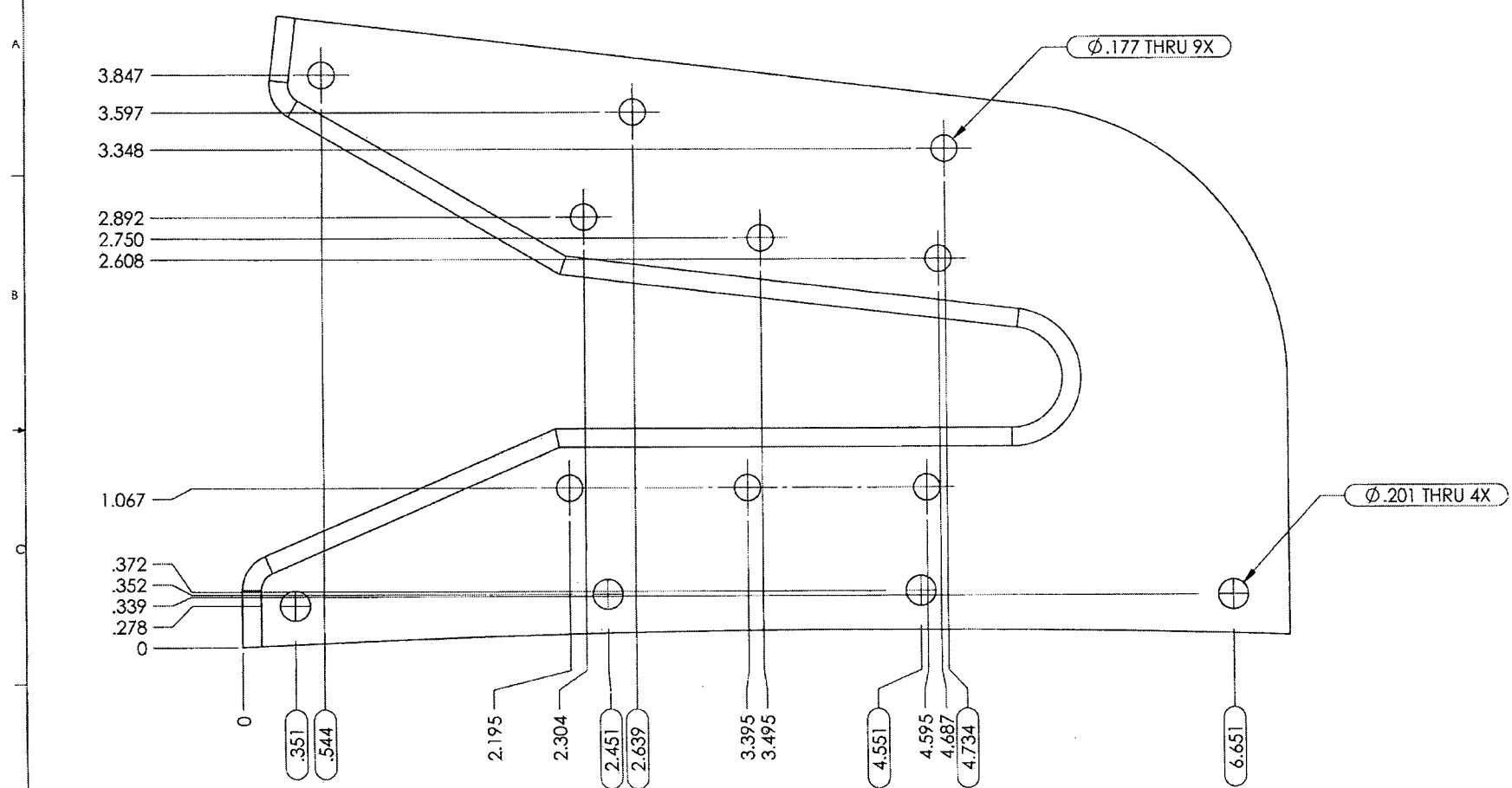
SECTION A-A 2/C6

646.9710

ORIGINAL DATE DWG. DATE: 10-29-07		APICAL INDUSTRIES	
DRAWN BY: CHIEF		2608 TEMPLE HEIGHTS DR.	
E. KOSIOWSKI		OCEANSIDE, CA 92056-3512 (760) 724-5300	
DRAWING APPROVAL:		CUTTER SUB ASSY	
P. BEAUCHAMPEL		REV. C	
C. BEAUCHAMPEL		SCALE: NONE	
C. BEAUCHAMPEL		SHEET 3 OF 6	

106350

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HOLE LOCATIONS +/- .002

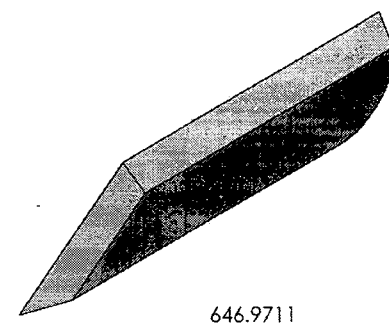
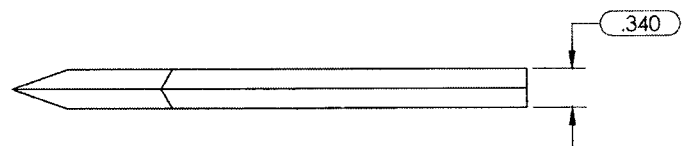
646.9710

ORIGINAL DATE 05/29/00		<b>APICAL INDUSTRIES</b> 2608 TEMPLE HEIGHTS DR. OCEANSIDE, CA 92056-3512 (760)724-5300	
DRAWN BY P. ROSARIO	CHECKED BY P. ROSARIO	CUTTER SUB ASSY	
DESIGNED BY P. ROSARIO		646.9700	
CONTRACT NO.		SCALE NONE	SHEET 4 OF 6

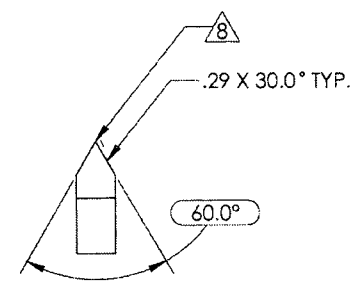
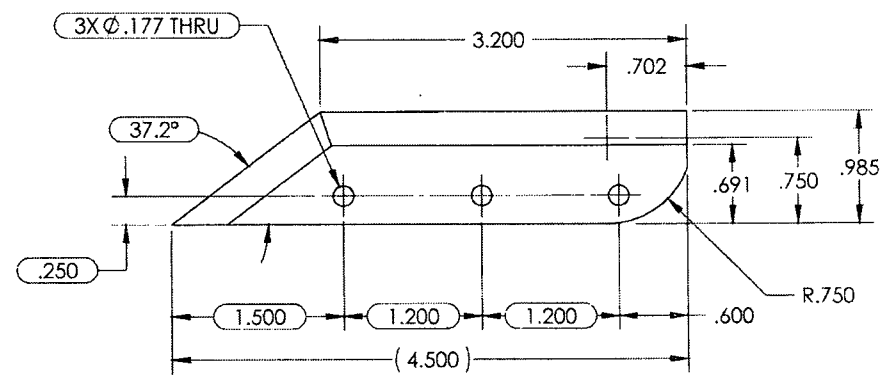


106350

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646.9711



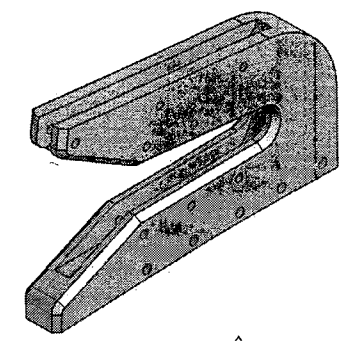
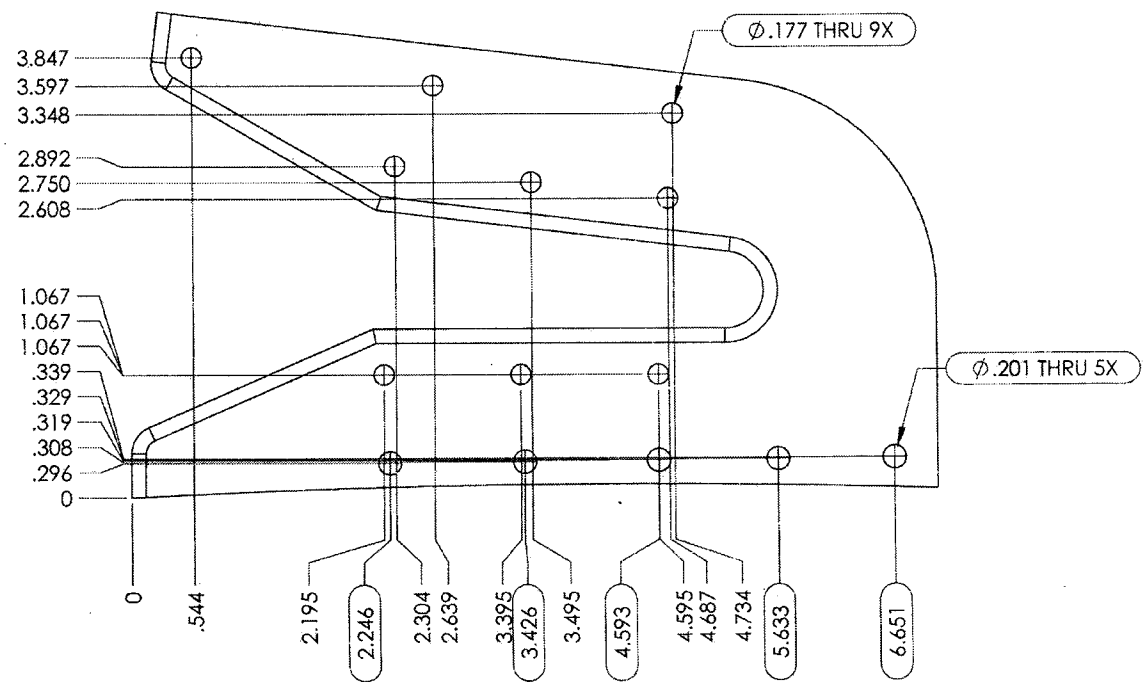
646.9711

ORIGINAL DATE 10/25/83		DESIGNED BY C. HICKER	
DRAWN BY P. ROSANO		CHECKED BY P. BRAUER	
DESIGNED APPROVAL P. BRAUER		DRAWING APPROVAL P. BRAUER	
CONTRACT NO.		SCALE: NONE	
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES DECIMALS ARE 2 PLACE DECIMALS 1 TO 2 PLACE DECIMALS 5 TO ANGLES 1/2°		REV R 07M16	REV C
CAGE CODE		DWG NO. 646.9700	SHEET 5 OF 6

**APICAL INDUSTRIES**  
2608 TEMPLE HEIGHTS DR.  
OCEANSIDE, CA 92056-3512 (760) 724-5300  
**CUTTER SUB ASSY**

106550

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646.9712 9

646.9712

ORIGINAL DATE 05-29-09		APICAL INDUSTRIES	
DRAWN BY P. HOSANO		2808 TEMPLE HEIGHTS DR. OCEANSIDE, CA. 92056-3512 (760)724-5300	
CHECKED BY P. HOSANO		CUTTER SUB ASSY	
DRAWING APPROVAL P. BRAYC 05-29-09		UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ARE: 2 PLACE DECIMALS ± .005 3 PLACE DECIMALS ± .010 ANGLES ± .5°	
QTY	CAGE CODE	UNCL. NO.	REV.
B	07M26	646.9700	C
SCALE NONE		SHEET 6 OF 6	

## Jean-Luc Menard

---

**From:** Pablo Bravo  
**Sent:** September-30-13 8:43 PM  
**To:** Jean-Luc Menard  
**Subject:** RE: DEVIATION ACCEPTABLE??

JL,  
I think once they are painted they will be around .013" so I don't think the extra .004" will be critical. Please go ahead and use the parts.

Pablo

---

**From:** Jean-Luc Menard  
**Sent:** Monday, September 30, 2013 5:46 AM  
**To:** Pablo Bravo  
**Subject:** RE: DEVIATION ACCEPTABLE??

Hi Pablo,  
Checked the ones we have in stock, measuring .009" with a feeler gauge.  
The ones we have here measuring .019" (blades unpainted).  
Let me know,  
JL

---

**From:** Pablo Bravo  
**Sent:** September-27-13 5:32 PM  
**To:** Jean-Luc Menard  
**Subject:** Re: DEVIATION ACCEPTABLE??

JL,

I think we can use the parts. Please check the clearance between the blades once they have been assembled and compare it to other cutter assemblies in stock.

Pablo

On Sep 27, 2013, at 5:46 AM, "Jean-Luc Menard" <[jmenard@dartaero.com](mailto:jmenard@dartaero.com)> wrote:

Hi Pablo,  
Thanks for explaining, we are measuring right on nominal (.250").  
What is happening is that the part is on size (.985") until we mill the blade angle, the tool (chamfer tool) overhangs the part and takes away at the point.  
Let me know on what you decide,  
JL

---

**From:** Pablo Bravo  
**Sent:** September-26-13 3:48 PM  
**To:** Jean-Luc Menard  
**Subject:** RE: DEVIATION ACCEPTABLE??



JL,

What is the distance between the holes and the bottom of the part? In the drawing it is .250 inches. The reason I ask is that if the blades are separated too much when they are installed (which could happen if the overall height is shorter than what's on the drawing) then not all of the cable strands will get cut as they go through the cutter. You would end up with some strands that get damaged, but are intact all the way through the blades. This ends up putting stress on the cutter body and causes the cable to fail in tension (where it is strongest) as opposed to being sheared. The design can handle one or two strands failing in tension, but if it gets past this then the cable won't get cut and the surrounding parts will fail. If we are on the high end of the tolerance on the distance between the hole and the bottom of the part (.255), then we might have too large of a gap.

Pablo

---

**From:** Jean-Luc Menard  
**Sent:** Thursday, September 26, 2013 4:54 AM  
**To:** Pablo Bravo  
**Subject:** DEVIATION ACCEPTABLE??

Good Morning Pablo,  
Here is another one, 646.9711, total height is coming in at .973".  
Is this acceptable?  
THX  
JL

<image002.png>

**Jean-Luc Ménard**  
*Production Engineering Supervisor*

**DART AEROSPACE**  
**T 1 613 632-5200 > 227**  
**F 1 613 632-5246**  
**1 800 556- 4166**  
[www.dartaerospace.com](http://www.dartaerospace.com)

<image003.png>

# METCOR INC.

560 BOUL. ARTHUR-SAUVÉ  
ST-EUSTACHE, QC J7R 5A8  
Tel: 450-473-1884 / Fax: 450-491-5498

## Reçu de livraison

Delivery Receipt

BON DE TRAVAIL Order	EXPÉDITEUR Shipper ID	BON D'EXPÉDITION Shipper
189961	1	75438

EXPÉDITION COMPLÈTE / Shipped Complete

CLIENT /Customer 215

### DART AEROSPACE

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

LIVRÉ À /Shipped To

### DART AEROSPACE

1270 ABERDEEN  
HAWKESBURY, ON K6A 1K7  
Ph: 613-632-5200  
Fax: 613-632-1053

COMMANDE DU CLIENT Customer PO	BON DE LIVRAISON DU CLIENT Customer Shipper No.	TYPE DE MATÉRIEL Material Type	DATE DE LA COMMANDE Order Date	TRANSPORTEUR Carrier
PO21577		A2	2013/10/4	FEDEX

QUANTITÉ Quantity	No. PIÈCE / Part No.	NOM DE LA PIÈCE / Part Name	DESCRIPTION DE LA PIÈCE Part Description	POIDS Weight
----------------------	-------------------------	--------------------------------	---------------------------------------------	-----------------

62 646.9711

(24) BLADE

REFERENCE 104935

(16) 646.9711 BLADE  
REFERENCE 106350

(14) 646.9711 BLADE  
REFERENCE 105988

(8) 646.3013 BLADE  
REFERENCE 106687

CONTENANT: 1 BOÎTE DE CARTON

18,

QUANTITÉ EXPÉDIÉE /Quantity Shipped: 62

POIDS EXPÉDIÉ / Weight Shipped : 18,00

Signature:

Date:

EXPÉDIÉ LE / Shipped On : 2013/10/09



# Metcor Inc.

Page 1 / 1

560, boul. Arthur-Sauvé, St-Eustache (Québec) J7R 5A8  
Tél. 450 473-1884  
Télécopieur/Fax administration 450 491-5498  
Télécopieur/Fax production 450 491-6454

## Rapport d'Inspection

### Inspection Report

BON DE TRAVAIL order	CHARGEMENT load
189961	1

CLIENT / customer 215

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

LIVRÉ À / shipped to:

DART AEROSPACE

1270 ABERDEEN

HAWKESBURY

ON K8A 1K7

COMMANDE DU CLIENT customer po	BON DE LIVRAISON DU CLIENT customer shipper no.	MATÉRIEL material	CODE DE TRAITEMENT mat'l heat code	NUMÉRO DE LOT lot number
PO21577		A2		

### SPÉCIFICATIONS DU PROCÉDÉ

processing specifications

VAC HARDEN

HARDEN AND TEMPER

EXIGENCE / requirement	SPÉCIFICATIONS / specified	TESTS EXÉCUTÉS / performed	RÉSULTATS DE TESTS / results
HARDNESS	58 - 62 HRC	13	58.0 - 60.0 HRC

QUANTITÉ quantity	POIDS weight	DESCRIPTION DES PIÈCES parts description
62	18	846.9711 (24) BLADE REFERENCE 104935  (16) 846.9711 BLADE REFERENCE 106350  (14) 846.9711 BLADE REFERENCE 105988  (8) 846.3013 BLADE REFERENCE 106687  CONTENANT: 1 BOÎTE DE CARTON

COMMENTAIRES / comments

CERTIFIÉ par / Certified by:



DATE: 2013-10-09